

difficulty of icebergs in sufficient numbers reaching so low a latitude.

The biological work was very fully developed on the voyage, and in addition to a close watch being kept on the changes in the surface plankton by continuous tow-netting, attention was devoted to the use of very large wide-meshed nets (one was of 7 metres diameter) for horizontal towing, and to a vertical net of 2 metres diameter. A somewhat unexpected result of the latter was the discovery that very young fishes increased in number with the depth. Thus in a vertical draught from 500 metres twelve "fischchen" were found, in one from 800 metres fifteen, from 1000 metres thirty-two, from 1200 metres thirty-six, from 2000 metres forty-three and from 3000 metres no fewer than ninety-six. Most of them belonged to the genus *Cyclothona*.

Dr. Bidlingmaier enters very fully into the methods and difficulties of magnetic work at sea. The two principal instruments in use are a Bamberg's deviation magnetometer and a Lloyd-Creak inclination instrument identical with that supplied to the *Discovery*. The results are not yet ready for publication, but a number of observations were made both at the ports of call and at sea. At Cape Town Profs. Beattie and Morrison repeated the comparison of their own instruments with those of the expedition which they had made a short time previously with the *Discovery*'s, thus enabling a comparison of the instruments of the two exploring vessels to be made.

The report concludes with a letter from the auxiliary station at Kerguelen which was established by Herr Enzensperger on the shores of Royal Sound in November, and was visited by the *Gauss* on her way southward in January, 1902; but the letter had been dispatched some weeks before the ship arrived.

We miss any detailed account of the meteorological work of the expedition, or particulars as to the placing and working of the various self-recording instruments on board.

It is impossible to overrate the importance of preliminary work in comparatively easy conditions before grappling with the manifold difficulties of the polar seas. Indeed, we believe that those who organise polar expeditions for scientific work would be well advised to insist on a preliminary trip of at least three months' duration before the final plans and equipment are settled. The result would not be waste of time; it would render fruitful a vast amount of work, which without preliminary experience is sure to be wasted. In this respect Antarctic expeditions are more advantageously situated than those to the Arctic regions, where the ship is in the midst of its field of work before the men have settled down to life on board and to work under the countless limitations which harass the man of science at sea.

H. R. M.

RURAL EDUCATION IN FRANCE.¹

ONE is always being reminded afresh of the essential solidarity of the thought of civilised man; no movement seems to begin with one man or in one place; the tide rises, and though this or that first receives the impulse and takes credit for being the creator, yet the wave has already reached many a distant creek and inlet. In two or three years the idea of giving an agricultural colouring to the work of the rural elementary schools of England has been getting itself translated into codes and circulars and syllabuses; the Agricultural Education Committee gave the needful push, but if anything else were wanted to prove that it only supplied the "starter" to a medium already prepared to react, it would be a consideration of the work done in the same direction in

¹ Vol. vii. of "Special Reports on Educational Subjects," published by the Board of Education.

France, as set out in the report before us. And the United States, our Australian Colonies and Canada, to name no more cases, would all report similarly—their educators have begun to realise that primary education has been systematised on bookish and artificial lines, which can nowhere be more pernicious or more easily avoided than in the purely country school, with trees and fields around it.

Unfortunately, the pioneers of any movement, just because they are pioneers and have brought a certain amount of original thought to the work, are apt to forget that there must be other people progressing on the same lines; they shut themselves up in their own schemes, and bit by bit work through the same mistakes which everyone else has previously made.

Here comes the special value of such reports as the one we are now considering, and had this account of the attempt in France to impart an agricultural bias to the rural primary school been available a year or two earlier, many experiments destined to failure might have been avoided, and much well-meant effort directed into more fruitful channels.

The problem in France is like that of England, there is the same depression in agriculture, the same dominance of the town in the organisation of the State, the same increasing distaste for a farming life—in a word, the same impossibility of the primitive industry, with its toil, its small returns, its isolation, competing either for men or capital with the specialised affairs of the town. But as Mr. Brereton reminds us, France is more of an agricultural country than we are, so the problem was taken in hand earlier there; the economic difficulties were palliated by protection, and the primary education of the country was overhauled to ensure that it should stimulate, rather than divert, the child's desire to live on the land.

The volume before us consists of two reports; the first is a very detailed account by Mr. Cloutesley Brereton on the organisation of rural education in the Departments of Calvados, Orne, Sarthe, Indre et Loire, Loir et Cher. Here the machinery for the education both of child and teacher; the relations, financial and administrative, between the central authority, the department and the commune; the status of the teachers, the inspectorate, the departmental professors, &c., are set out at length, together with the personal impressions of the author while visiting typical schools in the district indicated. Mr. J. C. Medd, the author of the second report, deals with the country bordering Mr. Brereton's on the north and east; he is, perhaps, more specially concerned with "l'enseignement agricole" than with the general machinery of education. The first thing that strikes us is the predominance given in both reports, and indeed in the French system, to the programme. Most new movements in education narrowly escape being choked in their early days by a programme, and as we in England are still struggling to free ourselves from the wrappings of syllabuses, it is interesting to read how the vastness of the schemes framed by the departments in response to the law of 1879, resulted in practically no teaching except by a few enthusiasts. This was realised, and the Ministry issued in 1897 a well-reasoned scheme "on the teaching of elementary notions of agriculture in rural schools,"¹ which forms the basis of the work that is proceeding to-day. Even this circular seems to err in attempting instruction which is too definitely technical for the primary school, and so degenerates into text-book repetitions. The study of manures and artificial fertilisers has an extraordinary attraction for the sort of man who teaches in a primary school; he needs to be warned that they do not constitute the whole of agriculture, rather than encouraged to devote his "champs

¹ A translation appears in the Report of the Irish Commission on Primary Schools [c. 8925].

d'expérience" and his pot cultures to demonstrating the effect of nitrogen, phosphoric acid, potash, &c. Whatever happens to this sort of teaching in England, we hope the primary school will be left uninvaded by theories of manuring. Practical farmers have sometimes denounced the whole race of agricultural teachers as advertising agents for the artificial manure makers, and if when they happen to visit the village school, they hear little lads of twelve and thirteen glibly reciting scraps about nitrates, kainit and the like, there will only be one strong prejudice the more against "education."

All the programmes set out by Mr. Brereton and Mr. Medd are based too much on chemistry, which in an elementary school is necessarily academic instruction, and too little on botany and zoology, which can be made real, and interwoven with the child's daily experience of field and garden. Nor is there any indication of work done by the children themselves; the instruction seems wholly didactic.

But after all a syllabus should only be regarded as a series of boundary walls; it should say, "do what you like within these limits, but don't think yourself called upon to do it all." It does harm when it becomes a stereotyped substitute for the teacher's judgment. On the teacher the whole thing depends, and this is thoroughly recognised in both reports. It is because the current generation of teachers is not prepared for the work, either in England or France, that the work of vitalising the instruction of the village school must proceed slowly. France has the advantage of a properly organised system of training colleges through which all their teachers pass, and in them a course of agriculture is given by the departmental professor. In Mr. Brereton's opinion he has so many more pressing duties that this part of his work is performed in a somewhat perfunctory fashion; the teaching is too academic, and not enough use is made of the garden for practical instruction. It is difficult to see the value of "a lot of hard digging" for students when the gardener is left with the more ticklish operations that follow. We do not gather that the training colleges have arrived at any conception of a "normal" course in these studies bearing on agriculture and horticulture, which would practice the teacher in the very experiments, indoors and out, that he will want to pass on to his scholars. No one is in more need of this kind of drilling, for the primary teacher's training is always disposing him to think that if he knows how to describe an experiment he knows how to do it. Mr. Medd found a teacher who was afraid to do experiments lest his boys should meet with accidents and he himself be involved in claims for compensation; and Mr. Brereton records how unsuccessful the manure experiments, either in the open or in plots, were apt to be, which indeed is only "pretty Fanny's way."

However it is clear that the crux of the whole problem, lies with the teacher. Turn him out with an adequate preparation, keep him encouraged on the right lines by the inspectorate, and let him work out his own salvation. Uniformity is the least of virtues in this matter; the spirit the teacher puts into the task alone tells, and his individuality ought to be reflected in the instruction he gives, until each school has a special character of its own.

We trust these reports will be widely circulated and widely read; they will show what can be done, and may save us from expecting too rapid a progress. Mr. Medd speaks, perhaps, with more knowledge of country life, more experience of the same kind of thing at home, even if his enthusiasm does lead him to see things rather as they are meant to be than as they are. Mr. Brereton has the keener pedagogic eye for the place where the organisation becomes paper only. But both reports are eminently readable. Mr. Brereton is not afraid of letting his own personality appear, and if the final homilies which he addresses to the farmer, parson and squire sug-

gest that Mr. Brereton is young, and knows the country chiefly *en bicyclette*, those poor sinners are too chastened already to take his advice otherwise than with a smile.

A. D. H.

THE SMITHSONIAN INSTITUTION: ITS DOCUMENTARY HISTORY.¹

THE Smithsonian Institution, the great scientific establishment at Washington, which, in many respects, is to the United States of America what the Royal Society is to this country, was founded under the will of James Smithson (b. 1765), a son of Hugh Smithson, afterwards Duke of Northumberland, by Elizabeth Macie, a cousin of the Percys. The story of how it came to be founded, and of its great work for the United States and for the world, has been more than once recounted in this Journal. An article contributed by the late Dr. G. Brown Goode (NATURE, vol. liii. pp. 257, 281) in January, 1896, contained a very full account of the origin of the Institution and of the system of its administration; and, when the same writer edited, under the auspices of the Institution itself, a work on the "History of its First Half-Century," we took occasion in reviewing it to give a comprehensive outline of the rise and progress of this great centre of scientific energy (NATURE, vol. lviii. p. 271).

The work at present under review does not perform the same function as that of Dr. Goode. It is not a history of the Smithsonian Institution, but, as the title-page declares, it is a collection of "documents relative to its origin and history." In fact, it brings down to date a volume with the same title which was published in 1879. In the latter volume the documents relative to the inception and organisation of "the Smithsonian" from 1835 to 1837 were printed, and the present volumes cover the whole period from 1835 to 1899.

In compiling and editing these documents, Mr. William Jones Rhee, the keeper of the archives of the Smithsonian Institution, has very admirably performed a most arduous task. A compiler is not called upon to produce a work of high literary art, but he is called upon to give with faithfulness and accuracy all that comes strictly within the scope of his compilation, and this Mr. Rhee appears to have done. He has given us two classes of documents: first, the will of James Smithson, with correspondence, &c., relative to the bequest, and, secondly, a full reprint of those congressional proceedings which contain legislation relative to the establishment of the Smithsonian Institution. The extraordinary minuteness of the information preserved in these documents, especially of the first class, is sometimes almost amusing. Not only have we the will of James Smithson and the documents in the Chancery suit brought by the U.S. Government against the British Government, but we have the lawyers' bill for costs of the suit and the full account of the expenses of Richard Rush, who came over to fetch the money. We not only have a list of the stocks transferred by decree of the High Court of Chancery and a schedule of the personal effects of James Smithson, but we have all the details of Smithson's tea-service—12 cups and saucers, 6 coffee cups, teapot, slop basin, sugar basin and lid, &c. Indeed, such a mass of material, important and unimportant, as is printed in these two volumes would be overwhelming were it not accompanied by a good index. But this, by the editor's care, has been given, and those who have had experience of biographical or historical authorship and who have signed over the lack of particulars which so often belongs to the early stages of a history will not quarrel with a minuteness of detail

¹ "The Smithsonian Institution: Documents relative to its Origin and History, 1835-1899." Compiled and edited by William Jones Rhee. 2 vols. (Pp. liii. + 1044 and xvi. + 1045 to 1983.) (Washington, 1901.)